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Germany - Laws, statutes, etc.

Vaccination law of April 8th, 1874.

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German Empire.

VACCINATION LAW

of April 8th 1874.



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Vaccination Law of April 8th 1874.

We Wilhelm, by the Grace of God German Emperor, King of Prussia etc., decree in the name of the German Empire and by the assent of the Federal Council and the Imperial Diet, as follows:

§ 1. Vaccination is compulsory for:

1. Every child before the end of the year following the year of its birth: provided, it has not been medically certified (§ 10) to have previously already suffered from natural small-pox.
2. Every pupil of a public educational establishment, or of a private school, with the exception of Sunday and evening schools, before the end of the twelfth year of the pupil's life; provided, it has not been certified by a medical man, that he has been afflicted with natural small-pox once during the five preceding years, or that he has not already been successfully vaccinated.

§ 2. A person, liable to vaccination (§ 1), who cannot, according to medical testimony be vaccinated without his life or health being endangered, must be subjected to vaccination within a year after the cessation of the cause of such danger.

In cases of doubt as to whether that danger still exists, the competent official doctors (§ 6) opinion is decisive without further appeal.

§ 3. If, according to the opinion of the doctor (§ 5), the vaccination has been unsuccessful, it must be repeated the latest during the following year; and in the event its again being unsuccessful again in the third year.

The competent authorities have authority to order the last repetition of the vaccination to be performed by the vaccinating doctor (§ 6).

§ 4. If vaccination should have been omitted without any legal reason (§ 1, 2), it must be carried out within a period, to be fixed by the competent authorities.

§ 5. Every person vaccinated must show himself to the vaccinating doctor for reexamination at the earliest on the sixth day, and at the latest on the eighth day after having been vaccinated.

§ 6. Vaccination districts, each one under the supervision of a vaccinating doctor, must be established in every Federal State.

The vaccinating doctor has to vaccinate the inhabitants of the district free of charge between the beginning of May and the end of September of each year, in localities and on dates which must be made known previously. The localities, where the vaccination is to be performed and where those to be vaccinated have to appear for examination, must be chosen in such a manner, that no place in the district is further distant than five kilometres from the nearest vaccinating station.

§ 7. A list of the children liable to vaccination (§ 1 No. 7) must be prepared by the proper authorities before the commencement of the vaccination period. The directors of educational establishments concerned, must also prepare a list of the children to be vaccinated, who come under § 1 No. 2.

The vaccinating doctors should state in the list, whether the vaccination was successful or a failure, or why it has been quite or temporarily omitted.

The lists must be handed to the authorities after the end of each calendar year.

The arrangement of the lists is determined by the Federal Council.

§ 8. In addition to the vaccinating doctors, only medical men are authorised to vaccinate.

They must keep lists, similar to the forms prescribed in § 7, of all vaccinations performed; the lists must be handed in to the competent authorities after the end of each year.

§ 9. The governments of the different Federal States according to detailed regulations of the Federal Council have to provide for the fitting up of a suitable number of vaccination stations for the preparing of the vaccine.

The vaccination stations must supply public vaccinating doctors with vaccine lymph free of charge, and must keep lists of the source and supply of the same.

The public vaccinating doctors are obliged, when requested to do so, to supply other doctors free of charge with vaccine lymph, as far as their store suffices.

§ 10. A certificate of vaccination has to be drawn up by the doctor concerning the result (§ 5) of every vaccination. The certificate must state the Christian and surname, as well as the year and the day of birth of the child vaccinated, and also certify whether the law has been complied with by the vaccination, or whether the vaccination must be repeated again in the next year.

In the medical certificate which is given for the purpose of showing an absolute or temporary exemption from vaccination (§ 1, 2), the reason and period of such exemption must be stated, in addition to a description of the person, for whom it is made out.

§ 11. The Federal Council has to determine the form to be used for the above mentioned certificates (§ 10).

The first certificates are made out free of cost and stamp duties.

§ 12. Parents, foster parents and guardians are bound, if officially called upon to do so, to prove by means of the prescribed certificates (§ 10), that their children, foster children or wards have been vaccinated, or that lawful reasons have prevented vaccination from being carried out.

§ 13. The directors of those educational establishments, whose pupils are subject to compulsory vaccination (§ 1 No. 2), must ascertain, when receiving pupils, whether obligatory vaccination has been complied with, by asking for the certificates prescribed.

It is their duty to see, that pupils, who become liable to vaccination (according § 1 No. 2), comply with the regulations regarding the same during their stay in the institute.

Should vaccination have been omitted without a lawful excuse, they must insist on its being carried out.

They are obliged to do so as soon as the authorities four weeks before the date of the coming out of those pupils who cannot prove that they have been vaccinated.

§ 14. Parents, foster parents and guardians who are unable to produce the certificate required in § 13 will be punished by fines not exceeding twenty marks. Parents, foster parents and guardians whose children and wards remain unvaccinated as well as those who refuse to undergo for re-examination § 15 without any valid excuse and when officially called upon to do so will be punished by fines not exceeding fifty marks or by imprisonment not exceeding three days.

§ 15. Doctors and apothecaries if accused who do not comply with their duties as laid down in § 13 will be punished by fines not exceeding five hundred marks or by imprisonment not exceeding three months.

§ 16. Any person violating without excuse the order will be punished by a fine not exceeding one hundred and fifty marks or by imprisonment not exceeding fourteen days.

§ 17. Any person acting without the necessary care when vaccinating will be punished by a fine not exceeding five hundred marks or by imprisonment not exceeding three months provided that the penal code does not prescribe a heavier punishment.

§ 18. This law becomes valid on the 1st April 1875. The individual Federal States will take the necessary steps for the proper carrying out of this Law.

The existing regulations in the individual Federal States with regard to compulsory vaccination in the event of a small pox epidemic are not affected by this Law.

Given under our hand and seal.

Berlin, 8th April 1874.

Wilhelm.

v. Bismarck.

Decree of the Federal Council concerning the form for Vaccination lists, dated the 16th October 1874.

The Federal Council has resolved:

1. In drawing up the vaccination certificates mentioned in § 10, No. 1 of the Vaccination Law dated 8th April 1874, the forms I and II accompanying print No. 118 should be employed and the vaccination certificates of first vaccinations (§ 1, No. 1 of the vaccination law) printed on reddish paper, and the vaccination certificates for later vaccinations (re-vaccination, § 1 No. 2 of the vaccination law) on green paper; the certificates for re-vaccination must have the word "revaccination" in brackets printed beside the word "vaccination certificate".
2. The lists III and IV accompanying print 118 must be employed for certificates concerning the absolute or temporary exemption from vaccination, issued in conformity with § 10 No. 2 of the vaccination law, and all such certificates must be printed on white paper.
3. Vaccination lists prescribed by §§ 7 and 8 of the vaccination law must be drawn up in conformity with form V attached to the printed matter No. 118.
4. Form IV attached to print 118 should be used for a summary of the vaccination results.

Form I.

Vaccination Certificate.

Vaccination District _____ Vaccination List No. _____
_____ born on the _____ 18 _____
was vaccinated on the _____ 18 _____ for
the _____ time _____ success.

The legal duty has been complied with by this vaccination.*)

N. N. the _____ 18 _____

N. N.

Doctor (Vaccination Doctor).

*) On the green forms concerning revaccination, instead of "vaccinated", "revaccinated" must be put.

Back.

The vaccination is annually performed, free of charge in localities and at times, previously made known. The first vaccination of children should take place before the termination of the calendar year following the year of their birth, and the second vaccination (re-vaccination) of pupils of a public or private educational establishment, Sunday and evening schools excepted, should be performed within the calendar year, in which the children reach their twelfth year of age. If in the doctor's opinion, successful vaccination has not taken place, the vaccination should be repeated, and at latest in the year following. Every person vaccinated must show himself to the doctor for re-examination at the earliest on the 6th day and at the latest on the 8th day after being vaccinated. Parents, foster parents and guardians, whose children or wards have, in spite of repeated official notification and without any lawful reason remained unvaccinated, or who have not presented themselves for vaccination, render themselves liable to a fine or imprisonment.

REMARK.

Form I is used for all vaccinations, in which the legal obligations have been complied with, in the case of a first vaccination (§ 1 No. 1 of the vacc. law) as well of a vaccination later on (revaccination § 1 No. 2 of the vaccination law).

The following distinctions should be however made:

1. If a vaccination had a successful result at the first or second time the words "first" or "second" should be inserted between the words "for the time", and the word "with" between the words "time" and "success".
2. If the vaccination has been repeated for a third time (§ 3 of the vacc. law), the word "third" must be inserted between "for the time", and the words "with" or "without" between the words "time" and "success", according to whether the vaccination was successful or not.

Form II.

Vaccination Certificate.

Vaccination District Vaccination List No.
..... born on the 18 .. ,
was vaccinated on the 18 .. for
the time without success.¹⁾
The vaccination must be repeated next year.
..... the 19 ..

N. N.

Doctor (Vaccinating doctor).

Back (as in form I).

REMARK.

Form II is to be used in all cases where the vaccination has to be repeated in consequence of a previous failure (§ 3 of the vaccination law), as well for the first vaccination (§ 1 No. 1 of the vacc. law) as also for the vaccination later on (revaccination, § 1 No. 2 of the vacc. law).

The words "first" or "second" should be inserted after the words "for the time", just according to whether the vaccination has been performed for the first or second time.

Form III.

Attestation.

Vaccination District Vaccination List No.
..... born on the 19 .. ,
cannot be vaccinated without danger because
The legal vaccination may therefore be postponed
till
..... the 19 .. .

N. N.

Doctor (Vaccinating doctor).

¹⁾ On the green forms concerning revaccination, instead of "vaccinated", "revaccinated" must be put.

Back as in item I.

REMARK.

Form III is used for the first vaccination as well as the one later on revaccination, when a preliminary exemption from vaccination in account of illness is claimed. The reason of exemption must be inserted after the word "because", and the period of exemption after the word "will". The name of the vaccination district and the number of the vaccination list must be inserted by the vaccinating doctor, or by the authorities, in whose list the child concerned has been registered, as soon as the attestation necessary for exemption is laid before them.

Form IV.

Attestation.

Vaccination District

Vaccination List No.

born in the

19

has suffered from small-pox in the year : was
successfully vaccinated in the year and is there-
fore exempt from vaccination.

the

19

N. N.

Local Vaccinating Doctor.

Back as Form I

REMARK.

Form IV is intended for such cases in which exemption from vaccination is granted for the first vaccination as well as for the one later on. If the reason of exemption is that the child has suffered from ordinary small-pox, the words "and was in 19" should be struck out, and on the contrary, the child is exempt from vaccination because it has already been successfully vaccinated, the words "and was in 19" should be struck out, and the words "and is therefore exempt from vaccination" should be struck out.

The name of the vaccination district and the number of the vaccination list must be filled up in the vaccination list in which the child is registered by the vaccinating doctor or authorities as soon as the attestation proving exemption is laid before them.

According to a decree of the Federal Council dated 1st July 1878, the word "revaccinated" in the 3rd line of the text of the forms I and II of vaccination certificates for revaccination (on green paper) was substituted for the word vaccinated, and Forms I and II were superseded by other forms (V—IX). In consequence of the alterations and supplements made by order of the Federal Council dated 28th June 1899, and of corrections made by the Imperial Chancellor on the 5th February 1900, the forms V—IX mentioned above, run as follows:

Form V.

REMARKS.

I. The list for first vaccinations must contain:

1. Those children liable to the first vaccination, whose names are entered in column 25 of the preceding years list of first vaccinations to be carried forward.
2. All children born during the preceding calendar year, who are living in the vaccination district at the end of the year, no matter whether they were vaccinated in the preceding calendar year or not.
3. All children who have moved into the district from other vaccination districts, born in the preceding calendar year, and who are not yet certified as having been successfully vaccinated.

II. The following should be entered under column 8:

1. When vaccinated with animal lymph the name of the establishment, or private person, from whom the lymph has been obtained.
2. When vaccinated with human lymph from body to body, the Christian and surname of the child from whom the lymph is taken.
3. When vaccinated with human lymph kept for the purpose, the name of the establishment or vaccination doctor from whom the lymph was obtained. Should the doctor making the register have used lymph kept for the purpose and which was taken from a single child, the name of the child should be entered; if the lymph was taken from several children and mixed in

**List of children to be presented
for**

Consecutive number		of the children to be presented for their first vaccination		Name of father, foster-father or guardian		Number of previous vaccinations	Day of vaccination	Source of lymph	Kind of vaccination				
		Christian and surname	Day and year of birth	Name	Calling and domicile				with animal lymph	with human lymph			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	
								Glycerine lymph	Otherwise prepared	From body to body	Glycerine lymph	Otherwise prepared	

keeping, the name of the doctor himself must be inserted in the column.

III. The following should be entered in column 25:

1. All children not presented for second examination who are therefore entered in column 15 with "No".
2. All children unsuccessfully vaccinated for a first and second time, but not those for a third time (these can be ascertained from column 6 and 16).
3. All children withdrawn by reason of a medical certificate (column 23), as well as children not to be found (column 20) or unlawfully withheld from vaccination.

IV. The vaccination is to be regarded as successful, if at least one pustule has been regularly developed.

for their first vaccination.

1

Number of vaccination cuts or punctures made	Whether presented for re-examination afterwards and on what day	Was the vaccination successful?	Number of pustules developed	Vaccination not performed on account of:							To be entered accordingly in next years lists for revaccination	Remarks
				death	removal	not to be found, or casually absent from locality	smallpox successfully got over	previous successful vaccination	medically attested danger to life or health	withdrawal contrary to regulations		
14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.

Form VI.

INSTRUCTIONS.

I. The following data should be entered in the vaccination lists:

1. Those dates of vaccination entered in column 26 of the last year's vaccination list.
2. All names of public and private schools in the vaccination district with the exception of Sunday and night schools who attend them this year during the year under consideration, no matter whether they have actually or allegedly been successfully vaccinated within the five preceding years, or whether they have suffered from natural smallpox. The vaccination doctor must ascertain whether one of the last two events has taken place by inspecting the medical certificates in question, or by a personal inspection, and in an affirmative case enter it into the column of the list set apart for such cases.

II. The following data should be entered in column 8:

1. In vaccinating with animal lymph the name of the institute or private person from whom the lymph is obtained.
2. In vaccinating with human lymph from body to body, the Christian and surname of the person from whom the lymph is taken.
3. In vaccinating with human lymph taken from the medical stores, the name of the institute or vaccination doctor, from whom the lymph is obtained. Should the registering vaccination doctor have obtained the lymph from a single child, the name of the child must be entered; should he have obtained the lymph from several children and kept it mixed, the name of the vaccination doctor himself must be entered in this column.

III. The following data should be entered in column 26:

1. All children not presented for re-examination must therefore be entered in column 15 with "No".
2. All children vaccinated unsuccessfully the 1st and 2nd times, but not a 3rd time (can be ascertained from columns 6 and 16).

Form VII.

REMARKS.

- I. The vaccinating *doctor* should enter in the various columns of the "List of children submitted for vaccination within the year of their birth", the names, etc. of all those children who have been presented for vaccination and actually vaccinated before the end of the calendar year in which they were born.
- II. The following data must be entered in column 7:
 1. In vaccinating with animal lymph, the name of the establishment, or private person, from whom the lymph was obtained.

**List of children submitted to vaccination
for**

Consecutive numbers	Children already presented for vaccination within the year of their birth		Father's, foster father's or guardians		Day of vaccination	Source of lymph	Kind of	
							with animal lymph	
							glycerine lymph	otherwise prepared
1.	2.	3.	4.	5.	6.	7.	8.	9.

Form VIII.

Summary of
for

District	Number of inhabitants at last census	Total of children submitted for first vaccination	Children born in the previous year, who have moved into the district	of which		Remained to be vaccinated
				died	moved away	
1.	2.	3.	4.	5.	6.	7.
				of which vaccinated in the course of the business year		
				exempted from obligatory vaccination, because natural small pox got over		
				absolutely entered last year as previously vaccinated		
				already successfully vaccinated in previous years, but only now appeared for revaccinating		
				for the 1st time		
				for the 2nd time		
				for the 3rd time		
				total		
						12. 13.

Form IX.

Summary of
of

District	Number of inhabitants at last census	Total number of children to be submitted for the revaccination	of which		Settled down in the district during the business year	Remained liable to vaccination
			died	moved away		
1.	2.	3.	4.	5.	6.	7.
			of which vaccinated during the business year			
			exempt from vaccination, because got over natural small pox during the 5 previous years			
			successfully vaccinated during the 5 preceding years			
			Settled down in the district during the business year			
			for the 1st time			
			for the 2nd time			
			for the 3rd time			
			total			
						12.

vaccinations

1

of which have been vaccinated					Kind of vaccination					Not vaccinated on account of				
successfully	without success			result unknown, not having come to be scrutinised	with animal lymph	with human lymph				temporarily withdrawn because of medical certificate	not to be found or absent from locality by chance	withdrawn from vaccination contrary to regulations	Number of children born and successfully vaccinated during business year	Remarks
	for the 1st time	for the 2nd time	for the 3rd time		Glycerine lymph	otherwise prepared	from body to body	Glycerine lymph	otherwise prepared					
14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.

revaccinations

1

of which have been vaccinated					Kind of vaccination					Remain not vaccinated on account of					
successfully	without success			Result unknown as absent from re-examination	with animal lymph	with human lymph				temporarily set back because of medical certificate	cessation of attendance at school where vaccination is obligatory	not to be found or accidentally absent from locality	withdrawn contrary to regulations	Remarks	
	for the 1 st time	for the 2 nd time	for the 3 rd time			Glycerine lymph	otherwise prepared	from body to body	Glycerine lymph						otherwise prepared
13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	

Decrees of the Federal Council
dated 28th June 1899, concerning vaccination.
Resolutions and outlines of regulations for enforcing the
vaccination law.

1. Resolutions concerning the physiological and pathological state of the vaccination question.

1. Persons who have been once attacked by small-pox are, with rare exceptions, immune from a second attack.

2. Inoculation with vaccine has the effect of bringing about a similar immunity.

3. The duration of the protection from smallpox by means of vaccination varies within wide limits, but averages 10 years.

4. In order to obtain a sufficient immunity by means of vaccination, one well developed vaccination pustule is at least necessary.

5. A second vaccination is necessary ten years after the first vaccination.

6. Vaccination of the entourage of a single individual, increases his relative immunity, and vaccination therefore confers not only an individual but also a general benefit in regard to the danger from smallpox.

7. Vaccination can under certain circumstances be attended with danger for the person vaccinated.

In vaccinating with human lymph the danger of transmission of syphilis is not completely excluded, although very slight. Other injury resulting is confined to slight wounds, as has been proved.

All these dangers may be limited by careful performance of the vaccination to such a small extent, that the benefits of vaccination infinitely outweigh any possible injury.

8. Since the introduction of vaccination no increase of certain illnesses or general mortality, that could be attributed as a consequence of vaccination, has been scientifically proved.

2. Resolutions concerning the general introduction of vaccination with animal lymph.

1. No essential facts have been established up to the present which would point to a causal-nexus between the

known germs contained in animal lymph and the inflammatory symptoms, which appear after vaccination.

2. Vaccination should be performed with animal lymph. Human lymph may only be used exceptionally for public or for private vaccination.

3. Animal lymph for all vaccinations may only be used, if obtained from government vaccination institutes or their branches, or from such private institutes, which are under State supervision.

4. Special regulations are drawn up for the fitting up and working of State institutes.

5. The following regulations apply for the sale of animal lymph in apothecary's shops:

a) The lymph must have been obtained from government vaccination stations, their branches, or from such private establishments which are under State supervision.

b) The lymph must be kept in a cool place and protected against light.

c) The lymph should only be supplied in wrappers of the vaccination station, and such wrappers must be accompanied by the name of the station with details of the number of the order-book, of the day, on which the lymph was taken, of the amount of lymph contained inside the wrapper, as well as with directions for use. The latter should be worded according to §§ 13—19 the regulations laid down for doctors for the performance of vaccination.

d) Lymph should not be supplied, which is over 3 months old.

e) Entries should be made of the lymph received and supplied, and of the day of receipt, the name of the institute, in which the lymph was prepared, the day on which it was supplied, and of the name and address of the person when has been supplied.

3. Outline of regulations, to be complied with by doctors when they are vaccinating.

A. General Regulations.

§ 1. It is desirable that the vaccinating doctor should perform public vaccinations in every locality in his district.

In places where contagious illnesses, such as scarlet fever, measles, diphtheria, croup, whooping cough, spotted typhus or erysipelas are very prevalent, public vaccination should not be performed during the duration of the epidemic.

Should the vaccinating doctor become acquainted with the existence of such complaints in the localities concerned only after having commenced the vaccinations, or should even isolated cases of vaccination erysipelas occur, he **must** immediately stop vaccinating in the locality and **notify** hereof the proper authorities.

If the vaccinating doctor is treating individual cases of contagious sicknesses, he must prevent in a suitable manner their spreading through himself, when vaccinating.

It is advisable to avoid public vaccinations during the time of the greatest heat (July and August).

§ 2. The vaccination doctor together with the local police authorities must see that the necessary order is maintained on the vaccination days.

The overcrowding of the rooms set apart for vaccinating must be avoided and sufficient ventilation provided for.

The simultaneous presence of children undergoing first vaccination and of those being vaccinated for a second time must be avoided where possible.

B. Supply and production of Lymph.

I. When Animal Lymph is used.

§ 3. Vaccination doctors receive all the lymph, they require for public vaccinations gratis and carriage paid, from government vaccination stations.

§ 4. The vaccinating doctor should enter the name of the vaccination station from which and the time, when he has obtained lymph, in his stock book.

II. When Human Lymph is used.

§ 5. The vaccinated child, from whom lymph is to be taken for further vaccination must have its whole body previously examined, and must be found to be perfectly healthy and well nourished. It must be descended from parents who do not suffer from hereditary disease; children of mothers who have gone through several abortions or

miscarriages should under no circumstances be made use of for obtaining lymph.

The children from whom lymph is to be obtained must be at least 6 months old, legitimate and not the first child of their parents. These requirements are only to be deviated from in rare exceptions, and only if not the slightest doubt exists as to the good health of their parents.

Such children must be free from boils, scars and eruptions of all kinds, from condylomes on the gluteal parts, lips, or under the arms and navel, from swollen glands, chronic affections of the nose, eyes or ears, as well as from swellings and inflections of the bones, and must also show no symptoms of syphilis, scrofula, rachitis, or any other constitutional weakness.

§ 6. The lymph of revaccinated children must only be used in cases of necessity and never for first vaccinations.

The examination of the state of health of a revaccinated child, from whom lymph is to be obtained must be carried out with particular care, and in conformity with the views expressed in § 5.

§ 7. Every vaccinating doctor must keep a record where and when he obtained his lymph. Particularly is he bound to make a note of the name of the vaccinated child, from whom the lymph is obtained, and also the date when he obtained it, whether he desires to store the lymph for his own use later on, or for supplying other doctors. The lymph itself must be marked in such a manner that no mistake can occur later on as to its origin.

Such notes must be kept until the end of the following calendar year.

§ 8. Lymph must not be taken later than the same day in the week after the vaccination.

The pustules serving for the purpose of lymph extraction must be clean and uninjured, and only situated on a moderately inflamed base.

Pustules which have formed at the beginning of erysipelas, must under no condition be used for obtaining lymph.

At least one pustule must remain unopened on the person vaccinated.

§ 9. The pustules must be opened by puncturing or cutting. All squeezing of the pustule or its surrounding in order to obtain more lymph must be avoided.

§ 10. Only such lymph may be used, which exudes of itself and in which neither blood nor pus can be detected by the naked eye.

Bad smelling or very thin lymph must not be used.

§ 11. Only the purest glycerine may be mixed with lymph, and mixing must be performed by means of a clean glass rod.

C. The carrying-out of vaccination and re-vaccination.

§ 12. The children to be vaccinated must be inspected by the vaccinating doctor before the operation; the relatives accompanying them must also be asked about the state of health of such children.

Children who are suffering from serious acute or chronic illnesses, or such, which are detrimental to nourishment, or which alter the humours of the body, should as a rule, not be vaccinated or re-vaccinated.

Exceptions are permissible (especially in the case of natural small-pox) and are left to the discretion of the vaccinating doctor.

§ 13. Vaccination must be regarded as a surgical operation, and all precautionary measures necessary to prevent illnesses through an inflamed wound must be taken; the vaccinating doctor must pay special attention to the cleanliness of his hands, vaccinating instruments and of the vaccination locality; the store of lymph must be kept covered over whilst vaccination is being performed, so as to prevent its becoming polluted.

§ 14. Animal lymph should be used for vaccination as soon as practicable after its receipt, and must be kept in a cool and dark place until used. Lymph must not be diluted by the addition of glycerine, water or other substances.

§ 15. Only instruments that have been rendered free from germs by moist or dry heat (by thorough heating

or boiling), or by treating them with alcohol may be used for vaccinating each child.

The lymph required each time can be either taken direct from the lymph vessel with the vaccinating instrument, or placed on a little glass saucer on which there are no germs. In using hair tubes, it may be dropped directly out of them on to the instrument.

§ 16. As a rule vaccination is performed on the upper arm; for the first vaccination on the right, and in the case of revaccination on the left one. Four cuts at the most, not more than 1 cm in length are sufficient. The single vaccination incisions must be at least 2 cms apart. Loss of blood is to be avoided in vaccinations. It is generally not necessary to rub the lymph more than once into the wound which is held open by stretching the skin. It is forbidden to paint the lymph in with a brush.

Surplus lymph must not be replaced in the vessel or used for later vaccinations.

§ 17. First vaccinations are to be regarded as successful, if at least one pustule develops uniformly. In the case of revaccination the formation of little knots or blisters on the vaccinated spots is sufficient.

§ 18. The vaccinating doctor is bound to determine exactly, if possible, any disturbances in the course of the vaccination and every real or supposed after illness, and to immediately notify the same on such becoming known to him, to the proper authorities.

D. Private Vaccinations.

§ 19. The regulations of § 1, No. 3, as well as of §§ 4 to 18 apply also to private vaccinations.

4. Outline of instructions.

A. For the relatives of children, vaccinated for the first time.

§ 1. Children to be vaccinated must not be brought to the appointed public place from houses, in which contagious illnesses prevail; such as scarlet fever, measles, diphtheria, croup, whooping cough, spotted typhus, inflammations similar to erysipelas, or natural small-pox.

§ 2. The parents or representatives of the child to be vaccinated must inform the vaccinating doctor before the vaccination concerning previous or still existing illnesses of the child.

§ 3. The children must be brought to the appointed place cleanly washed and in clean clothes.

§ 4. After vaccination the most important duty is to keep the vaccinated child as clean as possible.

§ 5. The vaccinated child should, if possible be bathed daily; in any case careful daily washing should not be neglected.

§ 6. The diet of the child should remain unchanged.

§ 7. In favourable weather the child may be taken out of doors. In the height of summer, the hottest hours of the day and the direct rays of the sun should be avoided.

§ 8. The vaccinated spots should be protected with the greatest care from being rubbed, scratched or from getting dirty; they should only be touched with freshly cleansed hands, and in order to wash them only a clean sponge, clean linen or wadding must be used.

The vaccinated child should be carefully prevented from coming into contact with persons, who are suffering from suppurating abscesses, outbreaks on the skin or erysipelas, in order to prevent the transmission of germs of sickness to the vaccinated spots; articles used by such persons must also be kept away from the vaccinated children. Should disease of the above description break out among relatives of the vaccinated child who share the same domicile, it is advisable to consult a doctor.

§ 9. Little blisters show themselves four days after a successful vaccination, and are accompanied by slight fever. They increase in size up to the ninth day and develop into raised protective pocks which are surrounded by a red inflamed part. These pocks contain a transparent liquid which begins to grow dull on the eighth day. From the tenth to the twelfth day the pocks begin to shrivel up, the shrivelled part falling off by itself after three to four weeks.

A successful vaccination leaves scars of the size of the pustules, which can be plainly seen for many years.

§ 10. In the regular course of vaccination a bandage is unnecessary; however should a widely spread inflammation appear in the immediate neighbourhood, cold bandages of boiled water should be applied frequently; if the pocks open, a simple bandage should be put round the place.

In the event of serious indispositions occurring after vaccination, a doctor should be called in; the vaccinating doctor should be informed of every such illness, which occurs before the inspection, or within 14 days after the same.

§ 11. The vaccinated children should be brought for examination on an appointed day. Should it be found impossible to bring a child to the vaccination place on the appointed day for re-examination, on account of serious illness, or because a contagious disease has broken out in the same house (§ 1), the parents, or their representatives should notify the same to the vaccinating doctor at the latest on the examination day.

§ 12. The vaccination certificate must be carefully kept.

B. For revaccinated children.

§ 1. Children must not be brought to be vaccinated from houses, in which contagious illnesses have broken out; such as scarlet fever, measles, diphtheria, croup, whooping cough, spotted typhus, inflammations similar to erysipelas, or natural small-pox.

§ 2. The children should present themselves with clean skin, and in clean linen and clothes.

§ 3. The greatest care should be taken, that the children are kept as clean as possible after being vaccinated.

§ 4. The vaccination pustules generally develop on the 3rd or 4th day and are generally connected with such slight disturbances of general health, that it is not necessary for the child to absent itself from school. The child should only remain at home in the case of high fever. Should large rednesses and swellings of the vaccination pustules appear, cold bandages of boiled water should be applied. Children may continue to take their

customary baths. Gymnastics must not be performed by any children who have developed vaccination pustules, from the third to the twelfth day. The vaccinated places must be protected carefully from dirt, scratches or knocks, until they are cicatrized, and friction or pressure caused by tight clothes must also be avoided. Especial precautions must be taken to prevent associating with persons suffering from suppurating abscesses, eruptions of the skin or erysipelas, or contact with articles used by them.

§ 5. In case of any serious sickness developing after vaccination, a doctor should be consulted; the vaccination doctor should be informed of every such sickness, which occurs before or after examination, or within 14 days of the same.

§ 6. The vaccinated children should present themselves for after-examination on the day, appointed when they have been vaccinated. Should a child be prevented from coming on the day of the after-examination on account of serious illness, or because a contagious disease prevails in its home (§ 1), the parents or representatives of the parents have to inform the vaccinating doctor of the fact at the latest on the after examination day.

§ 7. The vaccination certificate must be carefully kept.

5. Outline of regulations, which must be complied with by the authorities, when they are carrying out the vaccination.

§ 1. As soon as the day of the vaccination is made known, the local police authorities must take care that the relatives of the children to be vaccinated receive the printed instructions for public vaccinations, and concerning the treatment of vaccinated children during the development of vaccination pustules.

In towns of over 10 000 inhabitants it is permissible to defer the distribution of the instructions to the relatives of the children vaccinated for the first time, until the vaccination day, provided that §§ 1 and 3 of the regulations in question are printed in the published announcement of the vaccination day.

§ 2. Should contagious diseases, such as scarlet fever, measles, diphtheria, croup, whooping cough, or spotted typhus, erysipelas inflammation, break out to any great extent in a locality, the public vaccination days should be postponed. The local police authorities should give due notice of the same to the vaccination doctor.

Children should not be brought to the public place for vaccination from homes, in which the sicknesses mentioned have occurred, or in which natural small-pox exists during the time of vaccination, and adults belonging to such places have to keep away from the vaccination places. Such houses must not be used as public vaccination places.

The vaccination and after-examination of children from such houses, should be performed apart from the other children vaccinated.

§ 3. Well lighted, properly cleaned and ventilated rooms, that can be easily heated and which are sufficiently large, must be set apart for public vaccination; if possible the waiting room should be separate from the operation room.

In cold weather the rooms should be heated.

§ 4. A representative of the local police authorities should be present at the public vaccination place, in order to maintain order conjointly with the vaccinating doctor.

All clerical assistance required must be provided for.

In the case of revaccination and after-examination, a teacher should be present.

§ 5. Overcrowding of the vaccination rooms, especially of the operating room should be avoided.

The number of children, summoned to be vaccinated ought to depend on the size of the rooms.

§ 6. If practicable, vaccination and after-examination of children already vaccinated should not take place simultaneously.

In any case children to be vaccinated for the first time, and children to be revaccinated, should be kept apart as far as possible.

§ 7. The children must have had their bodies washed all over before appearing in the vaccination rooms and be dressed in clean clothes. The doctor may refuse to vaccinate dirty children or such who are dirtyly dressed.

§ 8. Should a child liable to vaccination have been twice exempted from vaccination through medical certificates, further exemption can only be granted by the competent vaccinating doctor (2 No. 2 of the vaccination law).

Children, whose vaccination has been incorrectly certified as successful, are to be regarded as unvaccinated or unsuccessfully vaccinated children, according to the circumstances of the case.

§ 9. In case of an unusual course of the pox or of the illness of vaccinated children, medical treatment should be insisted on as far as possible. In case of alleged injuries through vaccination, measures should be instituted, and a report made to the higher administrative authorities; if necessary, an official and public correction must be made of any false statements that may have been circulated. The Imperial Board of Health must be informed with due celerity of all such occurrences.

The Registrars or Coroners are bound to notify immediately to the local police authorities every reported case of death from vaccination.

6. Regulations with reference to a selection of suitable vaccinating doctors.

1. The vaccinating doctors are appointed by the state authorities.

2. The duties of public vaccination are to be entrusted by preference to official doctors.

3. A special swearing-in of vaccinating doctors takes place before they enter on their duties.

4. The remuneration of vaccinating doctors requires the confirmation by the state authorities.

7. Regulations concerning the technical training of doctors for their vaccination duties.

1. Concerning the technical training of doctors for their vaccination duties the following is to be required:

a) During the clinical training of students they should be instructed particularly how to vaccinate, as well as given opportunities of learning vaccinating practically at the public vaccination and revaccination stations.

b) In addition, every doctor who desires to vaccinate publicly or privately must be able to prove, that he has been present at least at two public vaccinations and revaccinations, and has acquired the necessary knowledge concerning the extraction and preservation of lymph.

A knowledge of the theory of vaccination and its attendant duties is required by the medical examination.

8. Regulations concerning the institution of the permanent technical supervision of vaccination by officials from the medical civil service.

1. The supervision of vaccinating doctors should be entrusted to an official doctor, and in case the medical official is a vaccination doctor himself, to a superior medical official.

2. The supervision consists in an inspection, carried out on the spot, of one or several public vaccinations.

3. The books of the vaccinating doctor should be inspected once in every 3 years.

4. The inspecting officials should chiefly occupy themselves in inspecting the execution of the process of vaccination, the results, the keeping of lists, the selection of vaccination localities, number of children vaccinated, etc.

5. Vaccinations performed by private doctors are also open to inspection, provided they are not performed by doctors in their capacity as family doctors.

6. Likewise, a technical supervision of state and private stations for obtaining animal lymph is also necessary, and must be carried out by repeated inspections at suitable intervals.

7. The attention of the official supervising vaccination should also be directed to the commerce, or trade with lymph.

9. Regulations regarding the compiling of small-pox mortality statistics.

1. A report-form, containing the rubrics in the annexed supplement, must be filled up by the state medical official deputed for this purpose within eight days of every death from small-pox.

It is advisable, in order to ensure the completeness of the report, that a suitable cooperation of the medical official and the registrar of the district concerned takes place.

The report form should be forwarded to the State Statistical Central Bureau, or to any other office established by the State for their collection, examination and treatment for State purposes, within a period which will be determined by the State government later on.

2. The forms of the various States referring to the previous year, must be forwarded to the Imperial Board of Health, before the 1st March of the following year.

A summary should accompany them, which should clearly state the number of inhabitants, calculated at the beginning of the year of those towns which according to the last census had 10 000 or more inhabitants; the summary should consist of classes divided by every 10 years of age, and the two sexes must be kept separate. If exact data do not exist for such a calculation, it must be computed on the basis of the average increase or decrease in the population of the place concerned shown by the last census; this increase or decrease of the entire population as well as of the two sexes and various classes according to age must be estimated for the years after the preceding census.

Report form for cases of death through small-pox.

Parish	Administrative district
(Prussian Circuit, Bavaria: District office, etc.):
State	Street: No.
of the house of death (or hospital):	
Christian and surname of deceased:	
Sex male, female (The right word to be underlined.)	
Day, month, year of birth:	
Vocation (In the case of non earning, but not independent persons wives with no calling, children etc. — calling of the head of the family):	
Remark, whether the deceased was regularly employed outside the home in a manufactory, shop, etc. — what kind of employment (for instance paper mills), or whether the deceased attended a school:	
Day, month and year of death:	
Place and date:	

Signature of medical reporting official:

Regulations for the fitting up and management of State institutes for obtaining lymph.

I. Accommodation.

§ 1. Every institute established by the State for obtaining animal lymph must have at least three enclosed spaces, viz:

A stable,

A vaccination room, and

A room for the preparation of lymph.

§ 2. The rooms should be well lighted, dry, provided with ventilators and water pipes, easily heated, cleaned and disinfected; the walls must permit of their being washed up to a height of 2 metres. The stable and the vaccinating room must possess a water-tight floor that can be easily flushed and which is fitted up with drains for the outflow of waste water.

§ 3. All the rooms and spaces belonging to the station should be thoroughly cleaned at least twice annually. Similar cleaning should be done when necessary, and especially after a large gathering of people has taken place in the station.

The floor of the station stable and of the vaccination room should be flushed once daily, when in use. During the busy vaccination period, the walls of the above mentioned two spaces should be thoroughly scrubbed down, and rinsed, up to a height of 2 metres, at least once a week. The prepared lymph should be kept as free from dust and as clean as possible, when being used.

§ 4. Dung of the animals must be removed as quickly as possible from their stalls. If an animal is taken away from its stall altogether, the straw must be destroyed and the walls, floor and lattice work of the same thoroughly scrubbed and washed down.

The halters used for tying up the animals must be cleaned every time after use, and if made of leather must be kept well greased.

§ 5. Should an animal accommodated in the station have suffered from a contagious disease, those spaces in the institute in which it was placed as well as all utensils with which it has come into contact should be disinfected.

If the institute has become infected through other sources, then the whole place must also be thoroughly disinfected.

II. Selection and examination of the animals used for vaccination.

§ 6. Young oxen or calves should be used for obtaining lymph: the latter should be at least 3 weeks old. To animals 5 weeks old the preference should be given over younger ones. It is advisable to place the animals to be vaccinated under the observation of a veterinary surgeon in a separate stall before being taken over.

§ 7. The animal's state of health must be ascertained by a veterinary surgeon before they are vaccinated. Especial attention should be paid to the skin and navel. Such animals only which are thoroughly healthy may be used for the purpose of obtaining lymph.

§ 8. In vaccinating as well as in obtaining the lymph the temperature of the animal's body must be ascertained. Should it exceed 41° degrees Celsius, or should other symptoms of sickness exist, which according to the veterinary surgeon's opinion appear serious, the animal should not be used.

§ 9. During the development of the pustules the veterinary surgeon should watch the state of health of the animal.

§ 10. After the lymph has been taken and the animals slaughtered, they should again be examined by the veterinary surgeon. The internal organs and the hide must not be removed from the carcase until the examination has taken place. The examination should extend to the navel, the umbilical vessels, lungs, liver, milk and lymph glands, especially the mesenteric and mediastinal glands.

§ 11. The veterinary doctor should make a personal entry of his observations during the development of pustules, and also about the state of health of the animal when slaughtered, in the day book (§ 40) or in a special book kept for the purpose. In the latter case it should also be clearly shown to which animal the notes refer.

§ 12. The lymph obtained should only be used for the vaccination of human beings, if the veterinary certificate certifies, that the animal concerned was healthy in the sense of these directions (§§ 8 and 10).

III. Looking after and feeding the animals used for vaccination.

§ 13. The following may be used as litter for the animals: straw, hay, fine wood shavings, and peat litter.

The litter should be fresh and not have been used for other purposes. Great attention should be paid to the clean condition of the animals used for vaccination.

§ 14. The nourishment of the animals should be in accordance with the directions of the veterinary surgeon, and adapted to the age of the beasts.

IV. Staff of the Institute.

§ 15. The Institute should be under the management of a medical man.

The attendants should be healthy and in particular free from tuberculosis. In the event of contagious diseases breaking out in their families they must not attend at the Institute during the period of illness. During their working hours at the institute, they should wear suits that can be washed, which should be washed and disinfected when required. The same also applies to the working aprons.

§ 16. All persons who come into contact with vaccinated surfaces or lymph during vaccination or revaccination, either directly or indirectly with instruments, or who are occupied in preparing the lymph or storing it, should clean their fingers and nails most carefully with nailbrush and cleaner, thoroughly wash their arms and hands with soap and water and effectually disinfect them. This cleaning and disinfection must be repeated after every pause during work.

V. The vaccination of the animals and the taking of lymph.

§ 17. Animals which have just undergone a long journey, must only be vaccinated after their recovery from the effects of their journey.

§ 18. The larger animals must have their eyes covered with non-transparent material on going to the vaccination table and during their stay there.

§ 19. The vaccination tables must have a padded cushion to prevent the animals heads being damaged by knocks, and they must be painted so as to facilitate thorough cleansing. Every time after having been used they must be scrubbed and, thoroughly washed down. The leather fittings of he same must be well greased.

§ 20. The instruments used for vaccinating and obtaining the lymph, or those which come into contact with scarified lymph should not be used for any other purpose, and should be made entirely of metal, so that they can be easily cleansed and disinfected. They should be sterilised each time before being used. All vessels used for holding the lymph obtained, or used in vaccination, should be either sterilised by dry heat or boiled.

§ 21. The selection of the parts of the body of the animal, where vaccination is to be performed is left to the institute doctor, the area of the vaccinated portion should not, however, exceed an eighth part of the surface of the body.

§ 22. The part of the body to be vaccinated should be shaved, thoroughly cleansed with warm water, soap and brushes, which should be kept in disinfecting fluids, and then washed with boiled water. The surface to be vaccinated may be disinfected before vaccination by solutions of one thousandth part of sublimate, 2 percent Lysole, 3 percent carbolic acid, alcohol or any other suitable medium.

§ 23. For the purposes of vaccination, punctures short or long incisions, or scarification extending over small surfaces may be made.

§ 24. The following may be used for the vaccination of animals:

a) Human lymph of such children as have been vaccinated for the first time, which has been obtained in conformity with the regulations issued by the Federal Council, dated the 28th June 1899 (Directions to be complied with by doctors, when vaccinating § 5 and following clauses).

It may be transmitted in an unmixed state and fresh from the body of the child to the body of the animal immediately, or after having been kept in carefully closed capillaries, and if mixed with glycerine either fresh or after having been kept in capillaries or in sterilised capillaries with disinfected stoppers.

b) Animal lymph of the same nature as used for the vaccination of human persons.

c) The solid and liquid constituents of natural cowpox and real smallpox; if the latter is used, all precautionary measures should be observed, which are necessary to guard against the transmission of variola virus to human beings or articles belonging to the station.

§ 25. The taking of lymph from animals should take place before the suppuration of the contents of the pustules, and before any considerable reddening of the surroundings makes itself evident.

§ 26. The whole surface used for vaccination should be carefully cleaned with soap and warm water, and all the scurf and scab attached to the pustules removed before the lymph is taken. It is also permissible to disinfect the vaccinated surface by suitable means or with alcohol and ether.

§ 27. Only well developed pustules are adapted for the taking of lymph. One and the same pustule should not be repeatedly made use of.

§ 28. Lymph may be taken by means of a lancet, sharp spoon or spatula. The tissue of the pustules of living animals should be removed by scarification and strong pressure, but if possible, must be free from blood. Repeated scarification of the same spot is not permissible.

Where the conditions permit, the animal may be killed before the lymph be extracted.

VI. The preparation and forwarding of Lymph.

§ 29. The table on which the preparation of the lymph takes place should be provided with a glass slab. All instruments that come into contact with the lymph and the liquids added, and all vessels that serve to receive the lymph or liquid should be treated according to § 20.

The vessels should be kept properly closed before and during use. Rollers and other grinding machines which cannot be disinfected by moist or dry warmth, should be kept either in alcohol or some other disinfectant, or protected from dust in a suitable manner; in the latter case, however, they should be disinfected before use.

§ 30. For the preparation of lymph the liquid and solid component parts of the pustules are used, the scurf and scab being excluded. The lymph taken simultaneously from different animals may be mixed together.

Should any delay take place before the lymph is prepared for use, it should be preserved in glycerine until required.

§ 31. Animal lymph should never be used in the same condition in which it has been taken from animals for the vaccination of human beings; on the contrary it may only be used as follows:

1. After having been carefully rubbed in a mortar or by a machine, for which suitable glycerine (as required by the Drug Book), or a mixture of such glycerine with distilled, sterilised water has been used, into a preparation which contains one part of scarified lymph to ten parts of added liquid.

2. After having been rubbed with similar water or glycerine water, and after the solid parts have been removed by sedimentation or centrifugal force, it is converted into a pure liquid which may also be subjected to a inspissation process.

§ 32. If, when the lymph is ready, it is not placed immediately in vessels for forwarding, it should be kept in tightly closed, sterilised vessels.

§ 33. A suitable apparatus for filling and drawing of the vessels in which the lymph is conveyed, the glass parts of which should be sterilised before use, should be made use of.

§ 34. Only clean and well closed capillaries, or other glass tubes should be used for forwarding lymph. Tightly fitting corks must also be used for the latter. All vessels for the storing of lymph should only be used after having been thoroughly cleaned and sterilised by means of dry

heat, and after the corks have been disinfected with pure alcohol, or in some other suitable manner.

§ 35. Lymph when ready for use, should be stored until required, in a cool dark place.

§ 36. As a rule lymph should be tested by vaccinating before dispatching it. Before lymph, that has been cleared by sedimentation or centrifugal force and which has been stored for 2 or more months is sent away, its efficacy should be tested by a trial vaccination.

§ 37. To every consignment of lymph should be added the following details; the number in the despatch book (§ 41), the day of its extraction, the number of doses contained in each vessel, as well as by directions for use; a request for a report of the results of vaccinations, made with the lymph should also be enclosed.

The directions for use should be worded as the text of §§ 13 to 19 of the „regulations to be observed by doctors“ when vaccinating.

VII. The supply of Lymph.

§ 38. As a rule lymph ready for use is supplied in answer to written requests, but is only to be given to doctors and authorities, special cases making an exception.

§ 39. The institute authorities may always lay claim to 14 days grace before the execution of an order. This claim may however be disregarded when the supply of lymph concerned has been ordered by the proper police authorities in consequence of the outbreak of small-pox. The institute must therefore constantly be provided with an adequate amount of efficacious lymph.

VIII. Lists to be kept.

§ 40. A day book should be kept of vaccinations performed on animals, containing the following headings:

- a) Consecutive numbers.
- b) Race, sex, colour and age of animal.
- c) The day of arrival, the last inspection, as well as the day on which it was fetched from the institute.
- d) The day and hour of vaccination, and of extracting the lymph.

- e) The kind and source of lymph used for vaccination.
- f) The temperature of the body (if possible also weight of body) of animal when being vaccinated, and when the lymph is being extracted.
- g) State of health of animal on arrival and during the development of pocks.
- h) Condition of internal organs after the animal has been slaughtered, as far as can be determined by the veterinary surgeon.
- i) Result of vaccination.
- k) Manner in which the lymph was prepared (§ 31).
- l) General remarks.

§ 41. A book should be kept of the lymph, sent away, which should contain the following headings:

- a) Consecutive numbers.
- b) The name and calling of recipient.
- c) The domicile of the above.
- d) The date of receipt of order.
- e) The date of forwarding.
- f) The source and age of lymph.
- g) The kind and preparation of lymph (§ 31).
- h) The amount of lymph sent.
- i) Remarks (about the results obtained by the vaccinating doctor with the lymph sent etc.)

IX. Scientific and practical investigations concerning animal lymph.

§ 42. It is incumbent on public vaccination institutes to promote vaccination, both practically and scientifically, and therefore to carry on investigations by means of experiments, clinical observations etc.

§ 43. Regular annual reports should be made concerning the activity of the institutes, chiefly with the help of the material collected in conformity with §§ 40—42; such reports should be sent regularly to the Imperial Board of Health before the 1st February of each succeeding year, for the purpose of being uniformly arranged and published.

Vaccination Statistical Tables.

Explications of the tables.

Table I. Mortality from small-pox in Prussia and Austria during the years 1816—1902.

Table I shows a comparison between small-pox mortality in Prussia and Austria. There was very little difference in the number of deaths from the disease in the two countries as long as compulsory vaccination had not been introduced; since the enactment of the German vaccination law in Prussia however, the mortality there has sunk to a previously unknown figure, whereas it has remained stationary and at the same high rate in Austria for many years. Up to 1889 the mortality from small-pox in the latter country was on an average greater than it was before the epidemic in 1872, and it is only since 1890 that favourable conditions have again prevailed, although the losses from small-pox have remained greater during recent years than in Prussia.

Table II. Mortality from small-pox in a number of large towns in Germany and abroad.

Everyone of the 10 large German and foreign towns selected for comparison suffered severely from small-pox epidemics in the beginning of the Seventies; the mortality at that period was by far the lowest in London and Munich, the only two towns in which the compulsory vaccination of young children had been generally enforced before 1875; without however obligatory revaccination. Since the enactment of the German Vaccination Law, which prescribes revaccination as well as vaccination, the small-pox figures of Berlin, Hamburg, Breslau, Munich and Dresden have been infinitesimal as compared with

those of the 5 other foreign towns. Among the latter London, where a vaccination law exists, has suffered the least. It can however be well understood that in the absence of re-vaccination, and in view of the faulty enactment of the law there London still loses more inhabitants from small-pox, than any of the five German towns.

Table III. Mortality from small-pox in Bavaria and Belgium.

A contrast between Bavaria and Belgium, two countries of about the same population, very clearly demonstrates the advantages of compulsory vaccination. In Bavaria, where vaccination was prescribed by law as early as 1807, the mortality from small-pox was already comparatively very small before 1875, and even in 1871 and 1872 that country suffered very little as compared to Belgium. Since however revaccination has become compulsory everywhere in Germany through the Imperial Vaccination Law, the number of deaths from small-pox has constantly and considerably decreased in Bavaria, whilst in Belgium it still maintains a high figure from year to year.

Table IV. Cases of illness and deaths from small-pox in the different armies from 1867—1901.

This table was accompanied by the following explanation when it was published in 1883:

“Similarly to the populations of the various countries in question their armies also suffered from a small-pox epidemic in the Seventies. Reliable figures are lacking in regard to the French army, but it may be regarded as certain, that its losses were very considerable.”

“The Prussian army sustained by far the fewest losses during the years of the French war, although it was constantly in contact with the population in France which was suffering very considerably from small-pox.”

“The war itself, and its attendant fatigues, privations, etc. cannot have caused the increase in small-pox mortality; for the Austrian army had much larger losses from small-pox during the epidemic.”

“The only difference concerning small-pox conditions in the three armies is to be found in the Austrian and French armies, as already stated, having been incompletely revaccinated and in their being situated in the midst of incompletely vaccinated populations which therefore suffered very much from small-pox; whereas the Prussian army enjoyed the advantages of careful revaccination, and the indirect protection of surroundings almost free from small-pox.”

“It is also noteworthy that no death at all from small-pox occurred in the Prussian army after 1874, whilst the other two armies selected for comparison still show a considerable small-pox mortality.”

“It is impossible to adduce any other reason, than the effect of strictly carried out vaccination and revaccination for the remarkable differences in small-pox cases in the three armies.”

The following was also added to the memorial of 1888:

“The extent, to which these explanations apply to present day conditions, is shown by a glance at the table which has been completed up to the present year (see Table IV). The circumstance that a death from small-pox took place in 1884 in the Prussian army does not alter matters. It is the first and only one in a long series of years since 1874, and as a matter of fact, it concerned a militia-man called out for manoeuvres, who according to the vaccination lists of 1877 had already been twice unsuccessfully vaccinated, when he was recruited.”

“Vaccination in the Austrian army will be newly organised in the direction of a much stricter general enforcement, after May 1886, as vaccination and revaccination has, as already mentioned, only been imperfectly carried out up to the present. In the first place all recruits are to be subjected, immediately after their entering the ranks, to vaccination or revaccination, similar to the regulations existing in the Prussian army since 1834. The future will show the results attendant on these measures.”

According to Table IV which has been completed up to 1901 the measures mentioned have been brilliantly

successful. A table, taken from the annual military statistics of the Austrian army showing the number of vaccinations, illnesses and deaths from small-pox in that army since 1881, has been compiled as a supplement, and clearly proves the connection between the decrease in the disease and the introduction of general vaccination in the army.

In the Austrian army of every 1000 men
of the average strength maintained there were

	in	vaccinated or revaccinated	who fell ill	who died from small-pox
before the introduction of general vaccination	1881	56	4,3	0,29
	1882	53	4,2	0,27
	1883	79	2,6	0,16
	1884	108	1,9	0,08
	1885	137	2,1	0,12
after the introduction of general vaccination	1886	555	1,4	0,08
	1887	453	0,8	0,03
	1888	423	0,5	0,02
	1889	426	0,3	0,02
	1890	491	0,2	0,003
	1891	494	0,2	0,007
	1892	447	0,16	—
	1893	487	0,11	0,003
	1894	511	0,10	0,003
	1895	545	0,11	0,007
	1896	573	0,06	0,003
	1897	628	0,11	0,007
	1898	627	0,16	0,023
	1899	614	0,09	—
	1900	584	0,04	—

In the French army more favourable conditions also seem to prevail, since the repeatedly ordered, but only imperfectly carried out vaccination of the troops has been really properly enforced, in consequence of a ministerial decree dated the 21st Nov. 1882.¹⁾ To judge, on the one

¹⁾ Bulletin du service de Santé militaire. 1887—89 See page 635.

hand, from the number of annual vaccinations contained in the "Statistique médicale de l'armée", and, on the other hand, from the number of cases of death and illness from small-pox, it is perfectly clear, how with the increase of the first the latter have considerably decreased.

In the French Army

there were	in	average number of troops	vaccinated or revaccinated where first vaccination was unsuccessful	fell ill	or died from small-pox
before the introduction of general vaccination	1885	451 941	170 512	214	6
	1886	471 517	152 677	288	17
	1887	457 677	194 540	302	18
in the year in which the enforcement of general vac- cination (in November) was ordered	1888	507 360	308 540	345	14
after the introduction of general vaccination	1889	524 733	409 281	190	20
	1890	533 042	507 195	102	4
	1891	523 372	651 922 ¹⁾	105	3
	1892	524 719	537 786 ¹⁾	117	1
	1893	525 687	519 778 ¹⁾	132	4
	1894	546 371	506 467 ¹⁾	97	7
	1895	544 459	631 140 ¹⁾	61	6
	1896	564 643	649 294 ¹⁾	56	3
	1897	—	—	60	1
	1898	—	—	32	2
	1899	—	—	78	5
	1900	572 029	714 493	70	5

It is noticeable that the number of vaccinations during the last years was greater than the average strength of the army, but this can be explained, for in those years all the troops of the reserve and the territorial army were also vaccinated on their joining the army for manoeuvres,²⁾ and

¹⁾ From 1st April to 31st March.

²⁾ Ministerial decree dated April 25, 1899. Bulletin de Service du Santé militaire, Volume 1887—89, page 803.

further the figures include the second revaccinations made after unsuccessful first vaccinations. As in the first few years after the introduction of vaccination older troops who had joined the ranks when vaccination was not compulsory still remained in the army, the decrease of small-pox in the army only took a comparatively gradual course. Although the decrease of small-pox has made itself very apparent under the influence of vaccination in the Austrian and French armies, yet it has not been quite so thorough as in the German army. This is partly due to the fact that the two foreign armies have not been successful in obtaining such favourable vaccination results as the German army. In the Austrian army, certainly, the results have improved from year to year, but it was only in 1893 that of 100 men vaccinated for the first time vaccination took in 84 cases, and of 100 men revaccinated in 78 cases, whilst in the German army vaccination pustules developed in 88,7 % of the newly enrolled troops who had mostly been vaccinated twice in their lives, in 1891/92. In the French army even in 1892/93 only 64,8 % of first vaccinations, and 47,8 % of those vaccinated for the first time and 14,9 % of the repeated vaccinations took, and in 1896/97 63,4 %, 47,6 % and 13,7 % respectively.

Table V. Mortality from small-pox of the Civil and Military-Population in Prussia from 1825—1902.

A still more significant reason for the immunity of the German army from small-pox is, that the frequent danger of infection to which Austrian and French soldiers are exposed, only very seldom comes under consideration, in consequence of the more favourable conditions created by the Vaccination law. The great extent, to which the lesser or greater protection of the civil population influences the mortality from small-pox of a properly vaccinated army, is shown by Table V, in which the deaths from small-pox among the civil and military population of Prussia are contrasted. In the Prussian army after 1834, as already mentioned, there followed a considerable decrease of mor-

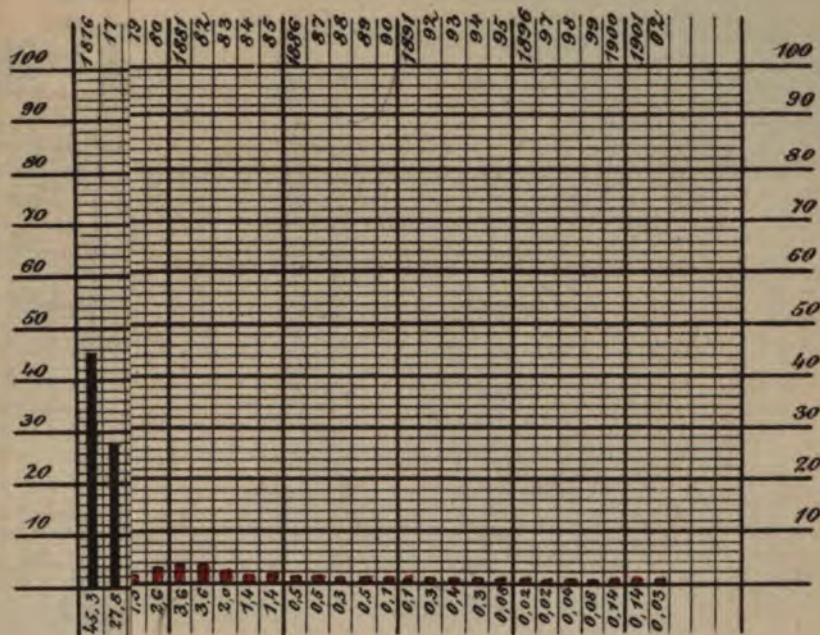
talities from small-pox corresponding to the carrying out of revaccination. As long however as, the civil population did not enjoy sufficient protection by vaccination, losses from small-pox still occurred in the army. After the disease had however been generally combated by the Vaccination law, the army has not had to record a single death from small-pox, with the exception of the isolated case in 1884/85, already mentioned.

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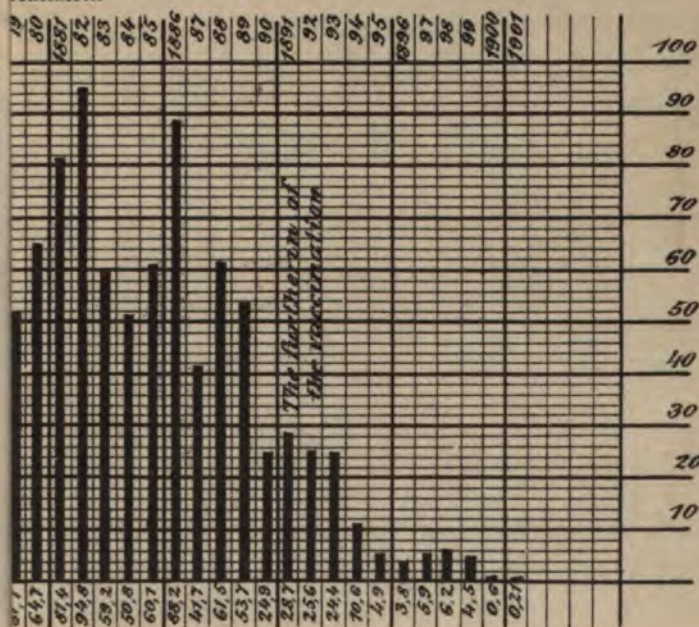
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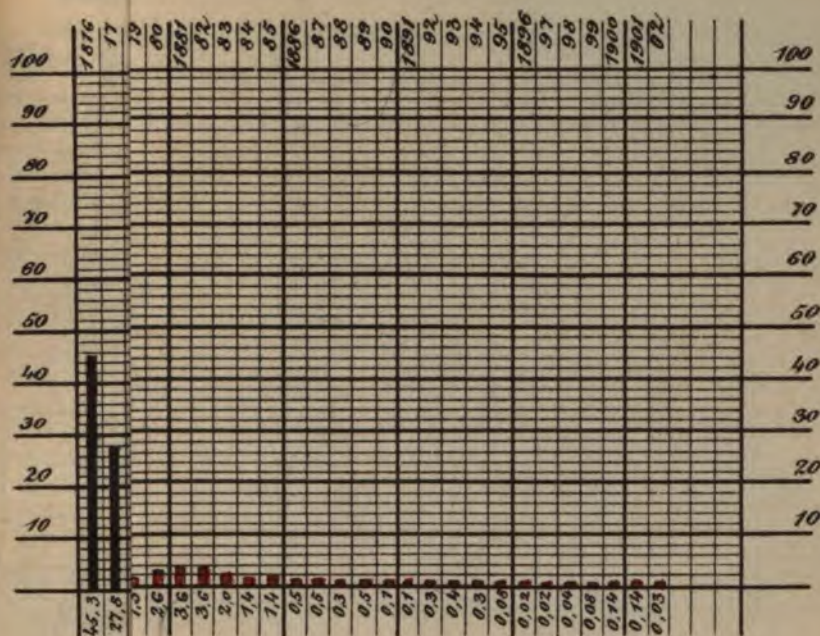
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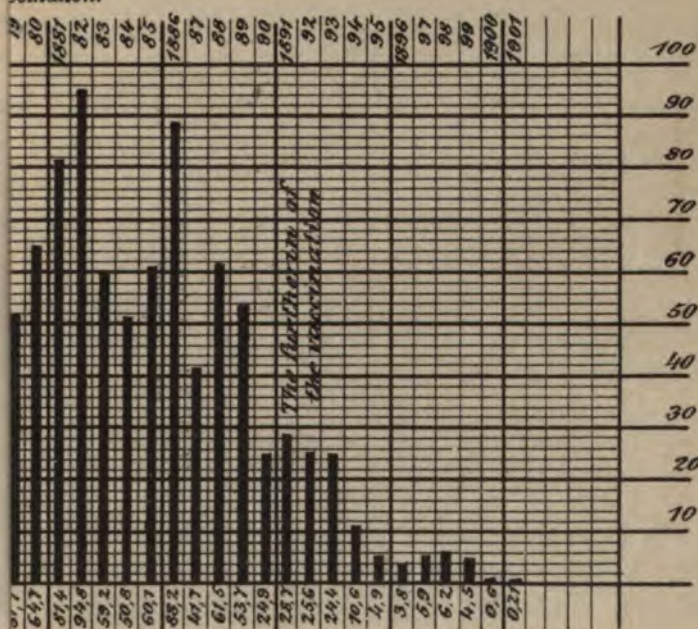
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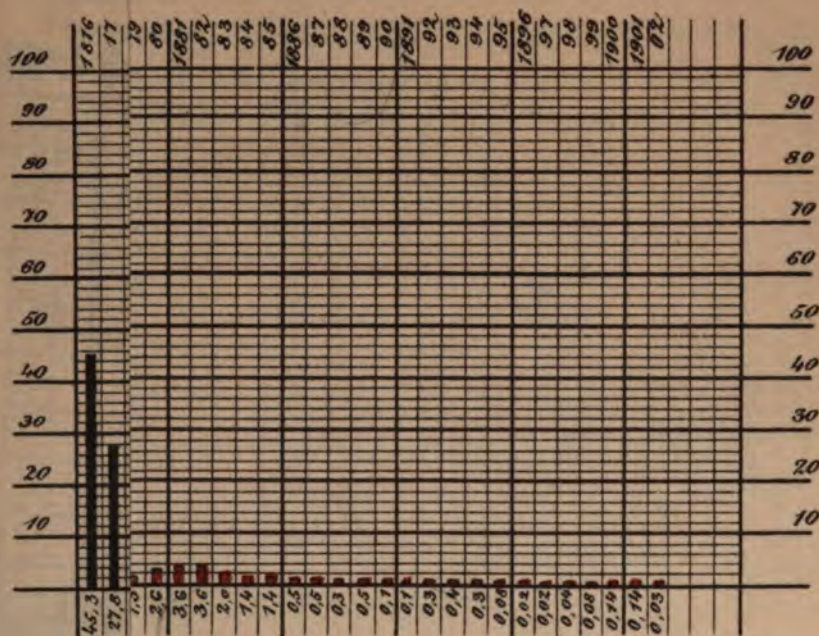


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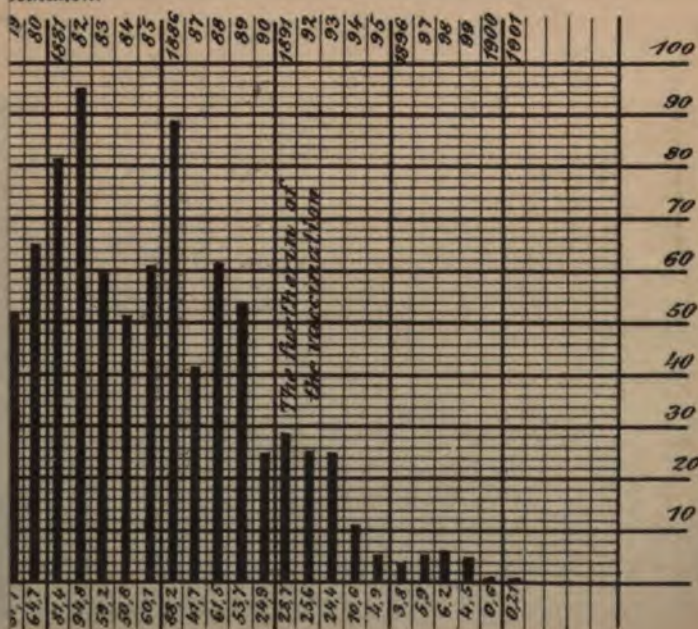
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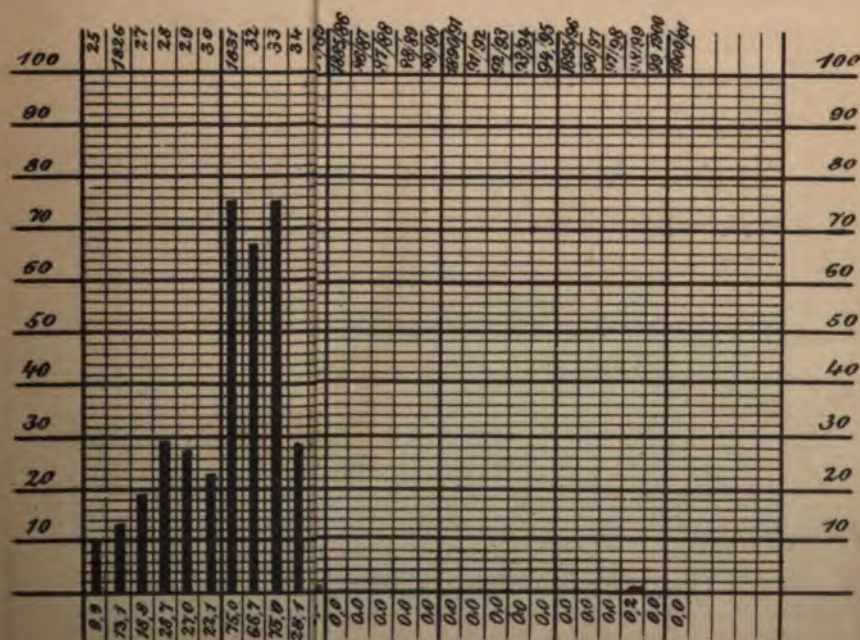
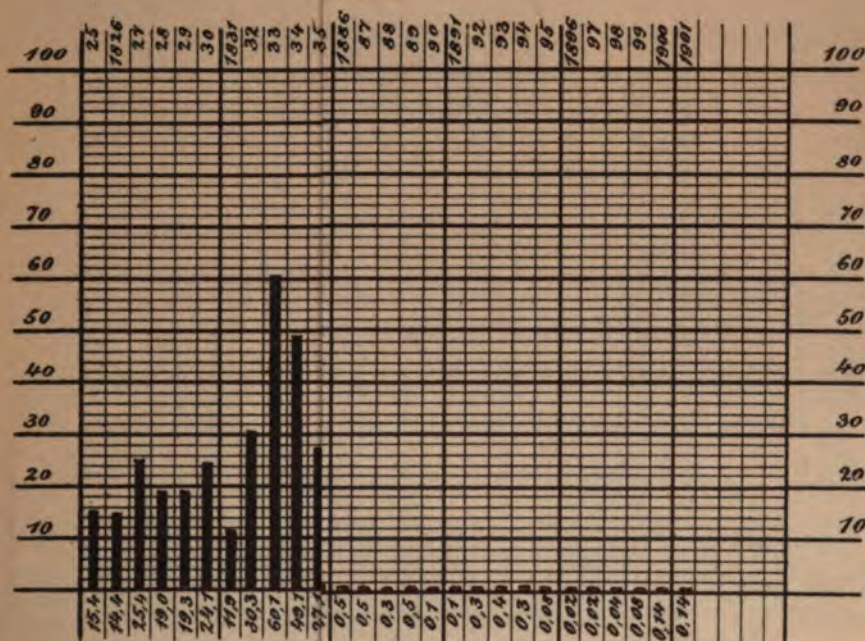
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Table V.

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